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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

David T. Bailey, et al.

Serial No. 10/001,880

Filed: November 16, 2001

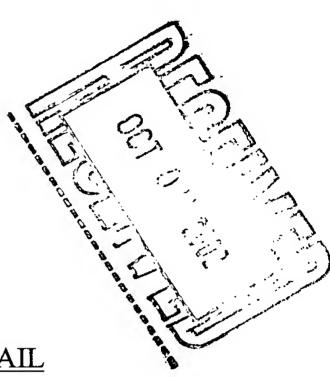
For: HIGH PURITY BETA-

CAROTENE AND PROCESS FOR

OBTAINING SAME

Group Art Unit: 1764

Examiner:



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INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. 1.97

Assistant Commissioner for Patents Washington, D.C. 20231

Sir:

Pursuant to 37 C.F.R. § 1.97, the Examiner may wish to consider the references listed on the attached Form PTO/SB/08A. In submitting these references, no representation is made or implied that the references are or are not material to the examination of this application. The patents, publications or other information of which Applicant is presently aware are listed in Form PTO/SB/08A submitted herewith and copies of all such patents and publications are attached hereto.

This Information Disclosure Statement is filed before mailing of a first Office Action in the above case. Accordingly, no fee is believed due. However, any fee associated herewith may be charged to Deposit Account No. 50-1123.

Signed on this ____ day of ______, 2002

Respectfully submitted,

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PTO/SB/08A (10/01) ATTY. DOCKET NO. HAU199 **APPLICATION NO. 10/001,880** (Substitute for form 1449A/PTO) CON Client/Matter No. 8250.0040.001 FIRST NAMED INVENTOR INFORMATION DISCLOSURE STATEMENT BY APPLICANT David T. Bailey, et al. (Use several sheets if necessary) FILING DATE **ART UNIT** November 16, 2001 1764 Sheet 1 of 3 **U.S. PATENT DOCUMENTS** Name of Patentee or Cite Examiner Document No. **Publication** Pages, Columns, Lines, Where Relevant Initials No. No. - Kind Code Date Applicant of Cited Passages or Relevant Figures Appear MM-DD-YYYY Doc 11/02/1976 1 US-3,989,757 Joseph Donald **Surmatis** 2 US-4,115,949 09/26/1978 Avron, et al. 3 US-4,199,895 04/29/1980 Avron, et al. 4 US-4,439,629 03/27/1984 Ruegg, et al. 5 US-4,554,390 11/19/1985 Curtain, et al. 6 US-4,680,314 07/14/1987 Nonomura, et al. 7 US-4,713,398 12/15/1987 Nonomura, et al. 8 US-5,310,554 05/10/1994 Haigh, W. Geoffrey 9 **US-5,328,845** 07/12/1994 Finkelstein, et al. FOREIGN PATENT DOCUMENTS Pages, Columns. Cite **Examiner** Foreign Patent **Publication** Name of Patentee or **Lines Where TRANSLATION** Initials No. Doc Date Applicant of Cited Doc **Relevant Passages** cntry code - No. - Kind or Relevant Figures MM-DD-YYYY Code **Appear** 10 12/9/1993 WO 93/24454 Betatene, Ltd. YES ÷ NO 11 GB/2218989A Institut Penyelidikan 12/15/1988 Minyak OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, Examiner Cite symposium, catalog, etc.), date, page(s), volume-Issue number(s) publisher, city and/or country where published Initials No. • 12 DOERING, LEVENTIS, and ROTH, "Thermal Interconversions among 15-cis-, 13-cis, and all-trans-B-Carotene: Kinetics, Arrhenius Parameters, Thermochemistry and Potential Relevance to Anticarcinogenicity of all-trans-β-Carotene," J. Am. Chem. soc., 177:2747-2757 (1995). 4 MONMA, TERAO, ITO, SAITO, and CHIKUNI, "Carotenoid Components in Soybean Seeds Varying with 13 Seed Color and Maturation Stage, "Biosci. Biotech. Biochem, 58(5):926-930 (1994). FABREGAS, FERRON, GAMALLO, VECINO, OTERO, and HERRERO, "Improvement of Growth Rate and 14 Cell Productivity by Aeration Rate in Cultures of the Marine Microalga Dunaliella Tertiolecta," Bioresource Technology 48:107-111 (1994). 15 CHEN, CHEN, and CHIEN, "Kinetic Model for Studying the Isomerization of α - and β -Carotene during 4 Heating and Illumination," J. Agric. Food Chem. 42:2391-2397 (1994). **EXAMINER SIGNATURE** DATE CONSIDERED EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if

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ATTY. DOCKET NO. HAU199 Client/Matter No.

APPLICATION NO. 10/001,880

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

FIRST NAMED INVENTOR David T. Bailey, et al.

FILING DATE November 16, 2001

81250.0040.001

ART UNIT 1764

		Sheet 2 of 3		
OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the Item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s) publisher, city and/or country where published		
*	16	OOI, CHOO, YAP, BASIRON, and ONG, "Recovery of Carotenoids from Palm Oil," JAOCS," 71 (4):423-426-(1994).		
`	17	KAZARYAN, ARUTUNYAN, RIMARENKO, IVAKIN, KUDRIN, and BOBNEVA, "Method of Beta-carotene Production," Invention certificate #3302060/2813.		
`	18	SPANOS, CHEN, and SCHWARTZ, "Supercritical CO ₂ Extraction of β -Carotene from Sweet Potatoes," <i>J. of Food Science</i> , 58(4):817-820 (1993).		
•	19	PESEK, WARTHESEN, and TAOUKIS, "A Kinetic Model for Equilibration of Isomeric β -Carotenes," <i>J. Argic. Food Chem.</i> , 38:41-45 (1990).		
100	20	BEN-AMOTZ, and AVRON, Algal and Cyanobacterial Biotechnology, "The biotechnology of mass culturing Dunaliella for products of commercial interest," Longman Scientific and Technical Press, 91-114 (1989).		
	21	BOROWITZKA, and BOROWITZKA, "β-Carotene (Provitamin A) Production with Algae," Biotechnology of Vitamins, Pigments and Growth Factors 15-16 (1989).		
\	22	BEN-AMOTZ, Israel Oceanographic & Limnological Research Ltd., "Chemical composition of Konatene™, 5% β-carotene powder of <i>Dunaliella</i> microalgae, a product of Cyanotech Co., Hawaii, USA," The National Institute of Oceanography (1988).		
`	23	MAMURO, KUBOTA, SHIINA, NAKASATO, OOI, and ONG, J. Jpn. Oil Chem. Soc., "Extraction of Carotenes from Palm Oil. II. Adsorption Method," 35(8):620-624 (1986).		
	24	MAMURO, KUBOTA, SHIINA, NAKASATO, OOI, and ONG, J. Jpn. Oil Chem. Soc., "Extraction of Carotenes from Palm Oil. III. Comparison of Various Adsorbents 35:620 (1986).		
7	25	BEN-AMOTZ and AVRON, <i>Plant Physiol.,</i> "On the Factors Which Determine Massive, β-Carotene Accumulation in the Halotolerant Alga <i>dunaliella bardawil,"</i> 72:593-597 (1983).		
	26	"Carotenoids as Colorants and Vitamin A Precursors, Technological and Nutritional Applications," edited by BAUERNFEIND, Academic Press (1981).		
~	27	Handbook of Microalgal Mass Culture, 230-234.		
	28	BEL-AMOTZ, and AVRON, " Glycerol, β-Carotene and Dry Algal Meal Production by Commercial Cultivation of <i>Dunaliella</i> ", <i>Algae Biomass</i> , G. Shelaf and C.J. Sueder, Editors, North-Holland Biomedical Press, 603-610 (1980).		
•	29	SEMENENKO, and ABDULLAEV, "Parametric Control of β-Carotene Biosynthesis in <i>Dunaliella salina</i> cells Under Conditions of Intensive Cultivation," <i>Soviet Plant Physiology</i> , 27:22-30 (1980).		
~	30	"Carotenoids," ed. by OTTO ISLER, published by Birkhläuser Verlag, 63-65 (1971).		
	31	AASEN, EIMHJELLEN, and LIAAEN-JENSEN, "An Extreme Source of β -Carotene," Acta Chem. Scand. 23(7): 2544-2545 (1969).		
	32	JENSEN, Acta Chem. Scaned. "Algal Carotenoids. III. The Oxygen Functions of Fucoxanthin," 18(3), (1964).		
~	33	CIEGLER, ARNOLD, and ANDERSON, "Microbiological Production of Carotenoids, IV. Effect of Various Grains on Production of Beta-Carotene by Mated Strains of Blakeslea trispora," Applied Microbiology, 7(2) (1959).		
~	34	CIEGLER, ARNOLD, and ANDERSON "Microbiological Production of Carotenoids, V. Effect of Lipids and Related Substances on Production of <i>Beta-</i> Carotene," <i>Applied Microbiology</i> , 7(2) (1959).		
~	35	ISLER, LINDLAR, MONTAVON, RÜEGG, and ZELLER, "Synthesen in der Carotinoid-Reihe. Die technische Synthese von β -Carotin," Fasciculus I, 39(27)249-259 (1956).		
7	36	"The Determination of Carotene in Green-Leaf Material, Part I. Fresh Grass," Analyst, 75:568-573 (1950).		
EVAMINED	CICNIATI			

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٠,	37	FURR, BARUA, OLSON, "Retinoids and Carotenoids," 1-71.		
	38	BEN-AMOTZ, "β-Carotene Enhancement and Its Role in Protecting <i>Dunaliella bardawil</i> Against Injury by High Irradiance," <i>Algal Biomass Technologies</i> , 132-135.		
دس	39	PURCELL, and WALTER, JR., "Preparation of ¹⁴ C-β-Carotene," <i>Methods in Enzymology</i> , 18C:701-706.		
•	40	SMITH, "Carotene," 36-51.		
`	41	BOROWITZKA, MOULTON, and BOROWITZKA, "Salinity and the Commercial Production of Beta-Carotene from <i>Dunaliella salina</i> ," 224-229.		
	42	"Carotenoids and Related Compounds," 53-83.		
~	43	"β-Carotene," Dictionary of Organic Compounds, 1008.		
	44	HILLS, et al., Food from Sunlight, "Nature's Most Wonderful Vegetable: Chlorella," 118-119.		
`	45	"The biochemistry of the carotenoids, 1.3 Isolation and Purification," 8-9.		
~	46	MOSS, and WEEDON, "Chemistry of the Carotenoids," 205-212.		
`	47	SYNNOVE LIAREN-JENSEN, "Carotenoids, III. Isolation, Reactions," 176-179.		
`	48	MACKINNEY, and MILNER, "Carrot Leaf Carotene," J. Am. Chem. Soc., 55:4728-4729 (1933).		
*	49	STRAIN, "Carotene, VIII. Separation of Carotenes by Adsorption," <i>Journal of Biological Chemistry</i> , 105:523-535 (1934).		
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